General Anesthesia in Ophthalmology

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• General or a combination of local and general anesthesia is beneficial in ophthalmic operations. With foreknowledge that they are to be asleep, patients approach operation with less trepidation, and during the procedure the surgeon can be more relaxed.

In a series of 300 cases reviewed, no complications that could be attributed to general anesthesia occurred at the operative site. Nasopharyngeal and tracheal irritation sometimes developed.

Anesthesia should be conducted by a well-trained, alert anesthetist; and the method and the agent should be determined after thorough examination and appraisal of the patient and consideration of the nature of the operation to be done.

ALMOST ALL PATIENTS confronted with the prospect of an operation upon the eyes have conscious or unconscious fear of pain and of what might happen if the eyes are moved during the procedure.

In an attempt to find a way to relieve this fear, the author in a series of ten cases of bilateral cataract extraction used local anesthesia for the removal of the cataract from one eye, then for the operation on the other eye used a combination of the same local anesthesia and Pentothal® sodium intravenously. All the patients, without being questioned, remarked upon the ease (to themselves) of the second operation. None had known when the operation was done, and all spoke particularly of the absence of disturbing flashes of light. They also remarked that they were free of the mental task of holding the eyes still. All wanted to know why the first operation had not been done under general anesthesia.

Knowing these benefits, a surgeon intending to use general anesthesia can give reassurance to patients before operation. Moreover, the surgeon himself can be more relaxed while carrying out an intraocular operation if the patient is asleep.

All patients should have a general physical examination before general anesthesia is given, in order that the anesthetist may select the most appropriate agent. When operation must be done in emergency, circumstances are of course variable and special evaluation is necessary. Patients who are to undergo elective operation not only should have a study of their general condition, but any system disorders like diabetes should be under control. The author does not hesitate to call upon a general practitioner or internist for help when diabetes, extremely high blood pressure or other such complicating conditions are present.

When such precautions are taken, there are very few patients for whom general anesthesia is unsuitable. Selection of the anesthetic agent, which should be discussed with the anesthetist, must take into account the general condition of the patient, the operation to be done and the time required for it. An occasional patient will, when asked, give a history of having had a reaction to procaine or other anesthetic agent in the past. It is important to ask, and important to avoid use of any agent indicted by the patient's reply.

Very old and very young persons are not well suited to Pentothal anesthesia. For them it is far better to use other agents. Of course ether has a wide margin of safety in children, but the possibility of postoperative vomiting must be considered in relation to what damage it might do to the surgical repair.

It is essential that expert anesthetists be in attendance in all cases of young children, doubly so if the patient has a congenital defect of the heart.

All patients, children and adults, who are to have general anesthesia during an ocular operation, should have an intratracheal tube in place before operation is begun. Either of two types of tube may be used: One has a cuff encircling it and is inflated to fill the trachea completely, and the other is used with a fairly tight fit between the tube and the vocal cords. One patient operated upon by the author died during anesthesia; and although he was a very small, frail child, one must wonder whether the covering over his face and the lack of unobstructed oxygen flow did not in some way contribute to the emergency.

The advent of Pentothal sodium as an intravenous agent stimulated the use of general anesthesia for operations upon the eye. The history of the development and use of Pentothal and morphine as anesthetic agents are satisfactorily summarized and dis-

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cussed in a number of articles that have appeared during the last few years.[1, 2, 3, 4, 6] In these articles attention has been drawn to the depressor effect of Pentothal, especially on the centers governing respiration and blood pressure. Warning is given as to the poor tolerance by very young and very old persons.

Attention has been drawn to the need of auxiliary medication, such as atropine, to prevent bronchospasm and laryngospasm during the use of Pentothal. Linn[5] stated that nausea and vomiting occurred in 4 per cent of patients observed by him. He intimated that these complications were probably due as much to preoperative medications as to Pentothal. He reported one death during Pentothal anesthesia. At autopsy the patient was found to have nephritis, hypertension, chronic hepatitis and cholecystitis.

The use of morphine intravenously for patients undergoing ocular operations has been recommended. Jensen, Haffley and Sarro,[4] although calling attention to the constant reminders that this anesthetic drug is very dangerous, maintained that allergic forms of bronchial asthma are the only contraindication to its use.

Paralysis of the extraocular muscles following general anesthesia has been reported, but the operations were not on or around the eyes.

In the author's experience since 1934, the combination of local and general anesthesia for ocular operations has been very satisfactory. Intraocular operations are well suited to a combination of the local use of cocaine and/or Pontocaine® drops and intravenous use of Pentothal, or a combination of Pentothal intravenously and a small amount of nitrous oxide, gas and oxygen. The latter combination of agents serves well in cases of cataract extraction in children. Postoperative nausea and vomiting are reduced to a minimum.

For extraocular operative procedures the patient can be given ether or a combination of agents for anesthesia since postoperative nausea and vomiting are not a serious consideration.

What complications attributable to the anesthetic arise during operations? The most disturbing is nausea and vomiting in children who are receiving ether and oxygen or a combination of ether and other agents. An accident of this type is directly attributable to lack of experience or lack of attention on the part of the anesthetist. Redraping is necessary when vomitus soils the field of operation. Coughing or labored breathing are disturbing during intraocular operations. Anesthetists now use a small amount of curare derivative (tubocurarine or Flaxedil) intravenously for the relaxation of the laryngeal and tracheal muscles.

Coughing and laryngospasm are two complications that have done much to prevent wider use of general anesthesia (Pentothal) for patients undergoing intraocular operations. These complications can be prevented by the use of atropine preoperatively and the use of added anesthetic agents just before removing the tracheal tube and sucking mucus from the throat.

The use of general anesthesia in the office depends upon the common practice in the community and on the nature of the procedure to be carried out. The author uses ether as an anesthetic when making examinations of difficult children and when probing tear ducts. The anesthetic is given in the morning and the patient is not permitted to have food or liquids after 6 o'clock the preceding evening. The local use of Pontocaine or cocaine solution helps to lessen the amount of anesthetic necessary for examinations of the eyes. It is imperative to have a suction device, in working order, on hand at the time the anesthetic is given.

The following observations were made in a review of records of 300 operations performed under a combination of local and general anesthesia:

1. There was no prolapse of the iris, loss of vitreous, rupture of the incision or any other accident which could be attributed to use of general anesthesia.

2. Laryngeal and bronchial irritation developed in a few cases. Irritation of the nasal membranes and the nasopharynx often developed after the use of a nasopharyngeal tube during anesthesia. (The author does not recommend use of a nasopharyngeal tube.)

3. Plaques developed on the vocal cords of one patient following the use of a tracheal tube. The use of Zephiran® as a sterilizing agent was thought to be the cause of irritation. A too tightly fitting intratracheal tube could contribute to such complications.

4. There were no cases of thrombophlebitis following the use of Pentothal.

5. The time of operation varied from ten minutes for a discission to two hours and thirty-five minutes required for repair of orbital and facial disfigurement.

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